THE TRAINING SCHOOL AT VINELAND, NEW JERSEY
DEVOTED TO THE INTERESTS OF THOSE WHOSE MINDS HAVE NOT DEVELOPED NORMALLY

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CONTENTS

PAGE

A STUDY IN DIFFERENTIAL DIAGNOSIS
USING A MODIFIED PLAY TECHNIQUE
Florence B. Ricciuti, Ph.D. - - - - - - - 135

INHIBITION OF THE EYELID REFLEX
IN THREE ETIOLOGIC GROUPS OF
MENTALLY RETARDED BOYS
AS COMPARED WITH NORMALS
Andrew Berger, M.A. - - - - - - - - 146

CURRENT PUBLICATION LIST - - - - - - - - 153

HAPPINESS FIRST
. . . ALL ELSE FOLLOWS

A STUDY IN DIFFERENTIAL DIAGNOSIS USING A MODIFIED PLAY TECHNIQUE

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For many years the mentally retarded were not considered good prospects for therapy. In earlier times it was believed that they did not suffer the emotional distress of "normal" people, but more recently the hypothesis has been that they did not have sufficient insight to profit by the therapeutic experience. The viewpoint has been expressed(1) that due to the deficient's inability to see the interpersonal nature of his problem he cannot adequately seek help or create the necessary therapeutic relationship. In view of the paucity of research in this area, it is interesting to note as Sarason(10) has pointed out that conclusions regarding the impracticality of psychotherapy with mental defectives have been based primarily on theoretical considerations. It is also possible that part of the lack of interest in the application of therapy to the problems of the mentally retarded can be attributed to the fact that the chief needs of the mentally retarded were long viewed as those of custodial care and vocational training.

With the resurgence of interest in the mentally retarded on the part of both parents' groups and professional workers the question of emotional conflicts interfering with both adjustment and functioning has at last received increased attention. In recent years several studies concerning outcomes of therapy with the mentally retarded have been reported. Heiser(7) in 1951 found that through the emotional release gained in psychotherapy a group of mental retardates were better able to use their abilities. More recently,(8) he reports on fourteen cases representing three major etiologic categories. His group included 1 familial, 6 organic, and 7 psycho-genic cases. In this study it was found that eleven of the fourteen subjects showed improvement in personal social adjustment and four of the eleven showed significant I. Q. increases. Fisher(6) and Cotzin(4), among others, have found group psychotherapy with mental deficients useful in fostering better social relations and improved over-all adjustment.

In addition to those workers who have been primarily interested in the use of psychotherapy in the accepted sense of the term there have been other studies carried out using modified programs of one kind or another. Chase[3] reports on the use of a "practical psychotherapy" with institutionalized mental deficients. Rather than a structured program of therapy sessions, this plan involved the use of a therapeutic attitude of permissiveness and understanding on the part of all staff members and the opportunity for informal counseling in the cottage setting. Fifty subjects participated in the study and were rated by a staff evaluation committee. The success of the plan is indicated by the fact that only 6% of the subjects were reported as showing no improvement in behavior or social adaptation while 66% showed moderate improvement and 28% showed great improvement.

Dewing[5] used occupational therapy as a means of improving the socialization of severely retarded children. This study aimed at the development of better behavior patterns and improved group relations as well as at the development of the use of thinking, discernment, perception and other processes on a fundamental level. In a group situation the children were presented with a variety of specific tasks and they were also given the opportunity for group play. The program was judged to stimulate improved group behavior and the more constructive use of materials.

Of the studies reported using therapy with mentally retarded children there is a dearth of material concerning the use of play therapy as a technique. Axline[2] reports on a study using three groups of five children each, all of whom had pre- and post-therapy intelligence tests. One group showed no appreciable change in test scores after therapy; they were rated as "low intelligence" both times. The second group was rated as "subnormal" on the first test but "normal" on the second while the third group was rated as "average" in intelligence on both tests. At the time of referral all fifteen of the children presented similar behavior and adjustment difficulties and improvement in this regard was made by some subjects in each group. Axline emphasizes the point that mental deficiency may be a symptom and that before anchoring a child to one spot with a label based on intelligence test results, opportunity should be given for the release of emotional tensions and the working out of conflicts. It would seem that in this way a differentiation could be more readily made between those youngsters who are truly limited in ability and those who are pseudo-retardates and can more effectively utilize their abilities.

In a differential program for mentally retarded children described by McCartney[9] play therapy was included as one phase of an approach designed specifically to train retarded children of the non-familial type. No evaluation of this phase of the program is given by the author.

The brief review of literature presented above illustrates that although there has been some research in the application of therapy to the problems of the mentally deficient, there has not been any organized attack on a field so fertile for study. As Sarason[10 p. 279] has pointed out: "Since mental deficiency is considered an incurable condition which responds in only a limited way to various types of educational and vocational training, it is surprising that psychotherapy as a test of the validity of the diagnosis of mental deficiency has received scant clinical and research attention." The question of diagnosis in regard to mental deficiency is by no means answered simply by the use of tests, social histories, parental interviews, and so on. Similarly, prognosis is often open to debate, for anyone who has worked with mental deficients knows from experience that accurate prediction of future success or failure for these people is a difficult task indeed.

The study reported in this paper evolved from a background of diverse problems concerning not only the applicability of play therapy to adjustment problems of the mentally retarded but also the difficult questions of clarifying diagnosis and predicting with some degree of accuracy the future performance of retarded children. Before describing the research it seems important to explain briefly some of the practical problems which arose in clinical work with these children; problems which in a sense precipitated this research.

Being a service agency the Rutgers Psychological Clinic has among its clients many children who are referred for help either because they present behavior problems or because they have specific defects such as slow speech patterns or poor coordination. In a portion of these cases the results of testing and observation indicate that the youngsters are mentally retarded, the undesirable behavior or specific defect existing either in combination with or as an integral part of the retardation. Due to the fact that the true nature of the child's difficulty often has gone unrecognized or unaccepted by the parents for a period of years, a large number of the children have been subjected to undue pressure, inconsistent discipline and/or over-protection in the home resulting in an overall picture of maladjustment. It at once becomes evident, in view of the many operative factors involved, that these children are not functioning adequately within the limits of their ability.

In 1952 a small number of such children were enrolled at the clinic for regular play therapy sessions in an attempt to help relieve the emotional difficulties involved and thereby effect a better adjustment. One of the most provocative results of this trial therapy program was the fact that as therapy progressed and some degree of emotional release was achieved the children's test behavior improved. It seemed that they were better able to make use of their abilities, and it was felt that under these circumstances more reliable estimates of potential were obtained. The question which was then raised was concerned with the effectiveness of a modified play technique so designed that a variety of tasks would be presented the children at intervals. After carrying out a pilot study the present project was undertaken sponsored by a grant from the Rutgers University Research Council. Specifically, the study was designed to appraise the effectiveness of a modified play technique as a diagnostic as well as a therapeutic method when used with young children whose deviant behavior may be related to mental retardation and/or emotional instability.

Eight subjects were selected to participate in the program. They were five boys and three girls aged 3 years 3 month to 7 years 3 months, referred to the clinic because of slow developmental patterns or poor school adjustment, whose histories indicated at least the possible presence of mental retardation. It is recognized that this is a small experimental group. However, it should be pointed out that all of the work with these children was done on an individual basis and also that practical limitations such as amount of time available and ability of the parents to cooperate restricted the group. With the exception of chronological age limits which were set up to range from 3 to 8 years no other restrictions were placed on the group, and the youngsters were taken in order of application.

The first step in the procedure was to secure as complete a history as possible on each child from the parents. Such factors as developmental patterns, point at which the parents became aware that the child was having difficulty, history of accidents and illnesses, etc., were all deemed to be important. With the permission of the parents an attempt was made to get a medical report on each child and any other psychological reports that might be available. Additional information was sought that might be of help in completing three data sheets on each child. These three sheets were concerned with the three main areas of ability, social adjustment, and personality development. Much of the

information on the ability area was dependent on test results and direct observations of the children. It included the following categories: I. Motor coordination; II. Form Perception and Visual Motor Coordination; III. Speech development; and IV. General Ability. The personality data sheet was concerned with three main areas: a. Level of frustration tolerance, b. Frustration reaction; aggressive, regressive, withdrawal, and autonomic responses and, c. General emotional tone; hyperactive, timid, phlegmatic and so on. Social adjustment was the third area in which data sheets were kept. This included the results of the Vineland Social Maturity Scale and information regarding level of play, solitary, associative, or cooperative, and the child's relation with his peers—group member, leader, tag-along—and with adults; timid, fearful, friendly, etc.

The second step was the administration of appropriate psychological tests such as the Binet, Kuhlmann, Merill-Palmer, Witmer formboards, Rutgers Drawing Test and whatever else was deemed appropriate depending on the age and ability of the child. Table I below presents some of the pertinent information obtained for each child in terms of ability and social maturity. All I. Q.'s presented are based on the Stanford-Binet Form L except in the cases of subjects 6 and 8 which are based on the Kuhlmann test. Subject 8 was handicapped by a hearing

TABLE I

Age, Sex, I. Q. and Social Age of the Subjects

S	Age	Sex	I.Q.	S.A.
1.	3-3	F	51	2.2
2.	7-3	M	46	4.4
3.	6-10	M	36	2.6
4.	6-11	F	52	5.2
5.	6-2	M	76	4.4
6.	6-2	M	21	2.9
7.	5-0	F	57	3.6
8.	4-0	M	60	3.1

defect and was extremely negativistic and resistant to all kinds of test materials. Since he completed more items on the Kuhlmann than on any other test this was taken as the best available measure at that time of his ability. However it was felt that in all probability this test score did not represent the child's true potential.

Once the testing was completed the children started coming twice a week for their individual sessions, each of which lasted one half hour. Usually the first two or three sessions were completely unstructured allowing the child to become familiar with his surroundings and to use whatever toys and materials he chose. Following the initial "get-acquainted" period the sessions were then partially structured. That is, approximately half of each session was devoted to free-play and the other half to the presentation of specific tasks. The tasks included sorting and matching colors, discriminating forms, construction work with paste and paper, using puzzles, beads, sewing cards, and other similar tasks. This afforded the therapist an opportunity to observe how the child used the materials, and gave the child a chance to use a large variety of materials, many of which he may not have seen before. All materials were not used during each session but they were always available. The children with less skill and/or a short attention span might use as many as four or five in one session while others used only one or two.

The tasks used were selected to fulfill certain objectives such as constructive play, self expression, eye-hand coordination, use of large and small muscles, color and form recognition and discrimination, and other similar processes. In addition to evaluating the skill with which the child used the materials it was important to note how quickly and with what degree of facility the child learned to use those materials with which he was not familiar. In order to properly evaluate the potential of a youngster it is important to know, for example, whether he cannot use a scissors because he does not interpret the task or does not have the necessary motor control involved or if on the other hand he has never been permitted the opportunity to try cutting.

A record was kept of each session for each youngster describing the activities of that day and the child's success, failure, or improvement in doing the tasks presented to him. His play was described as well as his reactions to the different tasks and his methods of handling difficulties. In essence this constituted a behavior description for each session. The program was carried on for a period of three months, previous work indicating that for the purpose of research a longer program reached a point of diminishing returns and a shorter one did not fulfill the aims of the study. All of the children had a minimum of twenty-four sessions with the exception of case number 7 who had to withdraw from the program after fifteen sessions due to family illness. In some in-

stances the youngsters had a few extra sessions when due to illness they had not been able to attend regularly and the continuity of the program was broken.

At the end of the 24 sessions a re-examination was given to each child in order to determine any change in intelligence quotient and also in order to evaluate the child's qualitative approach to the test situation —his attention, interest and cooperation. In addition to this three final data sheets were completed for each subject in the areas of ability, social maturity, and personality adjustment. Additional information was obtained from the parents regarding any noticeable behavior changes at home. They were asked to note specific improvements or regression rather than to give a general over-all evaluation. It was felt that by having them list specific changes some of the unreliability of parental report might be eliminated particularly since it is known that when parents know that something is being done for their children they may tend to see change or progress without any real evidence.

A comparison was then made of pre- and post-therapy test scores and the initial and final data sheets, including information drawn from the daily sessions. Due to the withdrawal of the one subject the

TABLE II
Pre- and Post-Therapy I.Q.'s

S	Pre-I.Q.	Post-I.Q.	Change
1.	51	59	+ 8
2.	46	47	+ 1
3.	36	46	+10
4.	52	58	+ 6
5.	76	84	+ 8
6.	21	22	+ 1
7.	57	none	
8.	60	96	+36

Note: All pre- and post-I.Q.'s based on same test except in case of S. 8. Merrill-Palmer used rather than Kuhlmann. M-P I.Q. compares well with M-P of "about 100" obtained at hearing clinic.

data are presented only for the seven who completed the program. Table II presents the pre- and post-therapy I.Q.'s for the subjects and the amount and direction of change. It will be noted that gains in I.Q. ranged from +1 to +36 points with the mean for the group being +10. In view of the standard error of test scores and the possible prac-

tice effects on a re-test within three to six months these gains in themselves are not considered to be significant. However, it is interesting to note that all of the youngsters did show an increase in score regardless of magnitude.

It should be pointed out again that the purpose of this research was not to raise I.Q.'s but rather to determine whether through a modified play technique one could in a sense lift the lid off the potential of these children so that through the release gained in therapy and by use of a wide variety of materials they might operate more adequately. Under these circumstances one indication of better functioning might be a gain in I.Q. Thus, these changes were inspected as part of the over-all picture of the children at the conclusion of the program.

It is interesting to note what other changes were observed in these subjects according to the final data sheets. Two, S3 and S6 showed very little change in general behavior or adjustment in regard to social maturity or personality. The former was slightly more cooperative, and although the mother of the latter reported more speech attempts and more interest in constructive things at home no difference was seen at the clinic. S1 showed a slight decrease in silliness and an increase in cooperation and ability to take directions. S8 who was handicapped by a hearing defect showed a marked decrease in fear and anxiety. The parents "found him much easier to get along with" and "happier and more relaxed". He was more cooperative about following directions and was not nearly as negativistic. It is felt that those changes account in large measure for the increase of 36 points in I.Q. In regard to his high level of play the final test score is accepted as reflecting more accurately his ability. S2 showed a definite increase in attention span. He was less distractible and less inclined to act silly when something was difficult. He was more likely to stick with a task and try to solve it. In addition to this there was a decrease in dependence on the mother. S4 who had been prone to whine and cry in the beginning of the program showed a decrease in this kind of behavior. She was more cooperative and more amenable to taking direction. During the final testing she was interested in the tasks and eager to try them. Attention span showed improvement and from working on six or seven things in one period she was able to stick voluntarily to one or two tasks at the end of the program. S5 probably showed the most marked gains in behavior. He was an immature cry-baby type child when first seen. He was hyperactive and given to uncontrollable behavior such as lying on the floor kicking

or running around bumping and sometimes breaking things. This behavior did not occur in a tantrum situation—that is, there was nothing specific that precipitated it. In this case there was a marked decrease in hyperactive behavior, and the child became less fearful and less dependent on his mother. There was a noticeable decrease in drooling and enuresis. In school his general behavior was reported to have improved, i. e., he was no longer given to outbursts of screaming, and from a complete lack of group participation he moved in to join all group activities. During the first testing session cooperation was minimal while the second time he was extremely interested and enjoyed the tasks. It is felt that his second I.Q. more closely approximates his true level, but in view of his marked behavior difficulties it is possible that with an intense play therapy program he might be able to function even closer to the norm for his age.

In summary, of the seven subjects who completed the program two showed negligible improvement in behavior and adjustment. One showed slight improvement, two showed moderate improvement and two showed good improvement. Thus, in four out of seven cases there was evidence that the children could do more with their ability than they had previously shown. In one case, S8, the change in behavior coupled with the rise in I.Q. indicates that the child is probably of at least average ability. In a second, S5, although the "I.Q. change" was less spectacular the diagnosis of mental deficiency was left open to question pending further therapy. It is interesting to note that the least amount of observable improvement occurred in those cases where the etiology was known and where there was an allied physical involvement: two of mongolism and one of encephalitis.

The results of this study indicate that at least some of these children found the unstructured part of the session an opportunity to effectively release tensions. With gains in independence and self-confidence they were more willing to try a greater variety of tasks and to attempt more difficult ones. It seems that the play type situation contributed toward gains in maturity and the child was more receptive to learning type tasks. It is probable that both therapy and concomitant changes in parental attitude contributed to some of the behavior changes observed in the children. It seems apparent that with gains in cooperation and self-reliance it is easier to obtain a reliable estimate of the child's ability. By means of the long-term study we were better able to get an over-all view of the kinds of things the child could do, his work habits, and the qual-

ity of his workmanship. Certainly this is helpful in regard to making plans not only for present training but also for future expectations. By observing and recording specific behavior the picture was at least more reliable than parental reports which were found to be particularly exaggerated in the areas of motor coordination and social maturity. Finally, it is felt that this technique helped clarify the original diagnosis in these cases and also contributed a fund of information useful both in making plans for the present and in thinking realistically of future trainability. The concurrent counseling of parents, although limited to a few sessions, seemed to help them accept more realistically the problems surrounding their handicapped children and to make appropriate adjustments in their present attitudes and future aspirations.

In conclusion, the writer feels that the results of the approach used in this research were encouraging enough to warrant further application of the technique in studying retarded or apparently retarded children. It is suggested that further work be done using subjects where the diagnosis of mental deficiency is even less clear cut than it was in most of the cases discussed here, since this approach provides an opportunity to evaluate the child behaviorally as well as in terms of ability and, at the same time, it affords the child a chance to release conflicts and tensions which might be hindering the effective use of his abilities. It may prove to be one way of separating out the truly retarded from the pseudo-retarded and of thereby helping to salvage those cases in which mental deficiency is a symptom. At the same time it is felt that the results of this study warrant the conclusion that the approach enabled at least some of the children to operate more effectively and by clarifying their status enabled more realistic plans to be made for their training.

BIBLIOGRAPHY

1. Allen, F. H. *Psychotherapy with children.* New York: Norton, 1942.

2. Axline, Virginia. Mental Deficiency: Symptom or disease? *J. consult. Psychol.*, 1949, 13, 313-328.

3. Chase, Mary E. The practical application of psychotherapy in an institution for the mentally deficient. *Amer. J. ment. Def.*, 1953, 58, 337-341.

4. Cotzin, M. Group psychotherapy with mentally defective problem boys. *Amer. J. ment. Def.*, 1948, 53, 262-282.

5. Dewing, Dorothy. Use of occupational therapy in the socialization of severely retarded children. *Amer. J. ment. Def.*, 1952, 57, 43-49.

6. Fisher, Louise A. and Wolfson, I. N. Group therapy of mental defectives. *Amer. J. ment. Def.*, 1953, 57, 463-476.

7. Heiser, K. F. Psychotherapy for the mentally retarded child. *Trng. Sch. Bull.*, 1951, 48, 111-119.

8. Heiser, K. F. Psychotherapy in a residential school for mentally retarded children. *Trng. Sch. Bull.*, 1954, 50, 211-218.

9. McCartney, Louise D. A differential program for mentally retarded children of the exogenous group. *Trng. Sch. Bull.*, 1954, 51, 27-33.

10. Sarason, S. B. *Psychological problems in mental deficiency.* New York: Harper, 1949.

TRAINING SCHOOL BAND WINS HONORS IN NATIONAL CONTEST

The 20-piece band of The Training School at Vineland won second place in the annual contest conducted by the American Association on Mental Deficiency. The band is directed by Hugh Kelly of the School Department.

Bands from public and private schools and institutions from all over the nation competed through recordings which were presented to the judges at the annual AAMD convention in Atlantic City. All the recordings were later evaluated by the music faculty of Trenton (N. J.) State Teachers College and awards made with pins and ribbons to the winning contestants.

With Mr. Kelly directing, The Training School band presented "Medley of Popular Marches" and "Blossomtime Airs". The recordings were made by Dr. Bernard Schlanger, speech pathologist, at the school.

This was the second national contest conducted by the AAMD to stimulate music education and appreciation. Notification of the award to The Training School band came from Dr. L. N. Yepsen of New Lisbon (N. J.) State School, who is secretary of the AAMD.

INHIBITION OF THE EYELID REFLEX IN THREE ETIOLOGIC GROUPS OF MENTALLY RETARDED BOYS AS COMPARED WITH NORMALS

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It has been held by workers in the area of mental deficiency that individuals who are retarded due to hereditary causes have what might be called "immature," though not damaged, central nervous systems; individuals who are retarded on the basis of psychogenic factors are thought of as having an intact CNS, owing their retardation to emotional factors; and those retarded due to organic injury have, of course, a damaged brain.

In the general practice of clinical psychology in the area of retardation, it is difficult at times to differentiate between those who have organic damage and those who do not. EEG examination and general neurological and psychological testing do offer means of differentiating, but additional tools are needed to raise the level of diagnostic certainty.

With those needs in mind, the object of this study was to attempt to differentiate individuals with an organic pathology from the other groups of mentally retarded subjects by means of their ability to inhibit the eye blink reflex. This particular reflex was used because it is easy to inhibit and it is readily observable. It is thought that the ability to inhibit this reflex requires a normally integrated brain.

To simplify the presentation of this paper, let us call "organics" O's, "familials" F's, "psychogenics" P's, and "normals" N's.

The hypotheses presented are: 1) O's will have considerably more difficulty inhibiting the eye blink reflex than the other groups; 2) The F group will be more capable of inhibition than the O's but less capable than the P or N groups. 3) The P's will inhibit more like the N's; 4) The N's will be able to inhibit the reflex readily; 5) Retarded individuals as a whole will have considerably more difficulty inhibiting the eye blink than the N's.

SUBJECTS AND APPARATUS

Eighty-one male subjects, sixty-one from The Training School and twenty N's from a public school, were used in the experiment. Each group was composed of twenty subjects except the O group which had twenty-one. All groups were matched for chronological age, which ranged from 9.9 to 19.9 years. The characteristics of the groups are summarized in Table I. The retarded population was chosen according

TABLE I

Chronological ages and intelligence quotients of the four groups used in the experiment

Group	N	C.A. Mean	C.A. S.D.	I.Q. Mean	I.Q. S.D.
Organic	21	14.4	1.77	59.8	11.2
Familial	20	14.5	1.93	61.8	10.9
Psychogenic	20	14.6	2.75	61.2	11.0
Normal	20	13.0	1.28	113.7	10.8

to the classification system devised by Riggs and Cassel (2), and 95% of the cases were chosen with the highest level of certainty.

A Miles V-scope for testing eye dominance, a chin rest, and the eye blink stimulator, which rested upon an office desk, were the apparati used. The stimulator consisted of a wooden-framed glass with a 1½ inch square transparency in the middle through which the subjects looked. On the experimenter's side of the glass, a small hammer was released, which struck the glass immediately in front of the subject's open eye which was focused upon a piece of paper six feet distant and three feet above the subject's eye level.

PROCEDURE

The subjects were asked to sit behind the glass plate and adjust the chin rest so that the eye to be tested would be ½ inch immediately behind the transparency where the hammer was to strike. It was explained to them that they were to keep their exposed eye focused on the piece of paper six feet in front of them and that the hammer would hit the glass and make them blink. They were challenged to see how soon they could keep themselves from blinking. Before the first stimulation was given, they were told, "Keep your eyes open; keep looking at the piece of paper and *don't blink*." The odd numbered subjects in each group were first

tested with the dominant eye and the even numbered subjects were first tested with the non-dominant eye. The time interval between trials varied between one and three seconds and was never uniform.

For each trial, a record was made of the response; no inhibition, partial inhibition and complete inhibition. Partial inhibition was defined as a blinking where the upper and the lower eyelids did not come in contact with each other. Total inhibition was defined as complete immobility of the lids while the stimulation was given. The subjects were given one hundred trials if they were unable to reach a criterion of two consecutive total inhibitions before that time.

RESULTS

Four measures were obtained from each of the eighty-one subjects. The original data showed no difference was attributed to eye dominance or position; therefore, the distribution of the scores being highly asymmetrical, they were combined as shown in Table II. The median of the

TABLE II

Performance of all groups for both dominant and non-dominant eyes combined. Sum of trials at which first partial inhibition (Pi) and total inhibition (Ti) were reached.

S	Pi				Ti			
	O's	F's	P's	N's	O's	F's	P's	N's
1	39	24	3	2	200+	70	5	29
2	53	10	4	2	200+	200+	38	4
3	14	3	29	2	136+	13	200+	5
4	11	2	37	2	92	16	200+	18
5	89	4	22	5	200+	200+	149+	200+
6	8	3	5	3	24	6	7	10
7	13	2	12	3	200+	57	150+	15
8	5	2	4	2	118	108	8	8
9	18	3	8	3	200+	5	158	5
10	42	6	12	2	200+	50	103	5
11	2	2	44	2	4	5	200+	4
12	3	8	6	3	200+	194	130	13
13	13	16	13	4	38	152+	88	11
14	6	6	2	3	30	15	5	13
15	9	5	3	2	78	15	138	4
16	2	9	10	2	11	139	134	5
17	10	3	43	2	200+	43	200+	4
18	2	8	5	3	5	200+	63	22
19	17	3	7	5	200+	10	54	78
20	9	4	4	2	200+	26	56	59
21	6				147+			
Median	10.0	4.0	7.5	2.0	147+	46.5	118.5	10.5

combined groups was computed for partial and total inhibition, and a count was then made of the number in each group falling above the median of the composite distribution. Then those who were above the median of the total population in each one of the groups and those who were at or below that median were plotted on a two by two table for chi square treatment. Each group, therefore, was compared with each other group, a total of twelve comparisons. A comparison between N's and all defective groups combined in terms of partial and total inhibition was also obtained by the chi square method.

The computed median for all groups combined for partial inhibition was 5.0 and the median for all groups for total inhibition was 56.0. Table III shows how many subjects from each of the four groups were

TABLE III

Number of subjects within each group falling at or below and above the median of all groups combined for partial and total inhibition irrespective of eye dominance

	Partial Inhibition		Total Inhibition	
Groups	At or Below Median	Above Median	At or Below Median	Above Median
O's	5	16	6	15
F's	12	8	11	9
P's	8	12	7	13
N's	20	0	17	3

above and how many at or below these medians. It will be noted in Table II that the O's are least able to inhibit their eye blinks as predicted by the first hypothesis. At the other extreme of the continuum lies the N group, which had the least difficult inhibiting. Contrary to expectation, there is a notable tendency for the P group to have more difficulty inhibiting than the F group. However, a chi square analysis of data between groups, as presented in Table IV, shows that the only statistically significant difference among retarded groups was between O's and F's, at the 5% level of significance, in their ability to make partial inhibitions. Both in terms of partial and total inhibition, the P group had almost as much difficulty as the O's: both chi squares between O's and N's were significant at the 0.001 level, while P's compared with N's

TABLE IV

Chi squares* and levels of significance on partial and total inhibitions for comparison of all the groups

	Partial Inhibition		Total Inhibition	
Groups Compared	X^2	P	X^2	P
O x F	4.14	0.05	1.96	0.20
O x P	0.61	0.50	0.01	0.95
O x N	21.89	0.001	11.05	0.001
F x P	2.50	0.20	2.53	0.20
F x N	7.66	0.01	2.98	0.10
P x N	14.40	0.001	8.44	0.01
D† x N	18.92	0.001	10.80	0.01

* X^2's were computed by McNemar's formula 85a which incorporated Yates' correction for continuity. See McNemar. Psychological Statistics, 1949, John Wiley and Sons, Inc., New York.

† All defective groups combined.

attain 0.001 level of significance for partial inhibition and 0.01 for total inhibition. Comparison between F's and N's attained statistical significance only for partial inhibition at the 0.01 level. Thus, the second and third hypotheses stating correspondingly that the F group would be second and the P group third in their inability to inhibit the eye blink reflex were not substantiated although the chi square comparing P's and F's did not attain statistical significance.

As seen in Table IV, all comparisons between the N group and the three groups of defective subjects attained statistical significance at either 0.001 or 0.01 levels, except for the chi square between the N's and F's for total inhibition where p was 0.10.

An analysis of the data comparing the combined performance of the three groups of defective subjects with the N group attains statistical significance at the 0.001 level for partial inhibition and at the 0.01 level for total inhibition. Thus the fourth and fifth hypotheses, stating that N's will be able to inhibit the reflex readily and that retarded individuals as a whole will have considerably more difficulty inhibiting the eye blink reflex than N's, were substantiated. The fact that F's perform at a lower level than N's suggests the possibility that there might be some kind of CNS deficiency in this group of retardates.

Since P's were able to inhibit only somewhat better than the O's and much worse than F's, the possibility is suggested that at least some children who are diagnosed as "psychogenic" might in reality have a CNS deficiency which neither neurological nor EEG examination has detected.

It is thought that this method of testing eye blink inhibition under more precise methods of observation, might become a diagnostic tool for the detection of brain damage. Other experiments lend some support to the results obtained here. In a study by Satter and Cassel (3) the ability to make tactual-kinesthetic localization on six skin areas among the three etiological groups was investigated. The findings were parallel to these presented in this paper, with O's making the largest errors, P's performing somewhat better and F's performing more like N's but not as well. A study now in progress on odor discrimination by Adis-Castro and Berger(1) also shows the same pattern with the three groups.

A continuation of studies of this sort should be worthwhile. Study of the neurological and EEG data obtained from those who can not learn to inhibit the blink reflex, irrespective of etiology, might give a better understanding of the mechanism underlying this process.

A second line of investigation might include the standardization of a battery of tests such as eye blink inhibition, tactual localization, odor discrimination and other sensory or motor activities which discriminate between O's and non O's. The likelihood for a subject who has no CNS damage to do poorly on *all* the tests included in such a battery would be exceedingly small if the trend so far observed in these studies continues.

SUMMARY

This study attempted to differentiate between individuals whose mental retardation is thought to be due to organic damage of the CNS, individuals who seem to have inherited their retardation, those who are apparently retarded on the basis of psychogenic factors and a group of normal children. It was assumed that a well integrated and undamaged CNS is necessary in order to inhibit the eye blink reflex and therefore it was predicted that O's would have the greatest difficulty in doing so and N's least difficulty, that F's would perform more like O's, and P's more like N's and that N's on the whole would have significantly less difficulty in this inhibition than retarded subjects.

Three etiologic groups comprising 61 subjects were matched for C.A. and tested to determine their ability to inhibit the eye blink. Another group of 20 N's was used for control.

The stimulus to the eyelid was the blow of a hammer on a plate of glass ½ inch from the open eye and the subjects were motivated to inhibit the blink reflex. A record was taken of the number of times it took each subject to make a partial inhibition of the blink and of the first two consecutive total inhibitions. The subjects were given 100 trials if they were unable to inhibit before that time.

It was found that O's have most difficulty inhibiting the reflex and N's least difficulty, both in terms of partial and total inhibition. The P group although it differed significantly from the N group, could inhibit more readily than the O's, while the F group performed much better than the P's but not as well as the N's. All comparisons between any of the defective groups and the N's attained statistical significance at either 0.01 or 0.001 levels of certainty except for total inhibitions between F's and N's where the comparison did not attain significance. A comparison between all defective groups combined and N's indicated a significance of 0.001 for partial inhibition and 0.01 for total inhibition. While there was a consistent trend for O's to perform most poorly, for P's to do somewhat better than O's, for N's to perform best and for the F's to fall between the P's and the N's, none of the differences between retarded groups attained statistical significance except for a comparison between O's and F's in partial inhibition where the significance was 0.05.

REFERENCES

1. Adis-Castro, G. and Berger, A. Olfactory discrimination among three etiological groups of mental deficients. Study in progress at The Training School.

2. Riggs, Margaret M. and Cassel, Margaret E. A classification system for the mentally retarded. Part II: Reliability. *Train. Sch. Bull.*, 1952, 49, 151-169.

3. Satter, G. and Cassel, R. H. Tactual-Kinesthetic localization in the mentally retarded. In press *Amer. J. ment. Def.*

CURRENT PUBLICATION LIST

Recent contributions of articles to journals, magazines, and forthcoming books by members of The Training School staff include:

JACOB, Walter
"New Hope for the Retarded Child."
Public Affairs Pamphlet No. 210.
New York: Public Affairs Committee, Inc. July, 1954.

SATTER, George A. (with McGee, E.)
"Retarded Adults who have Developed Beyond Expectation. Part II: Non-Intellectual Functions."
Training School Bulletin 1954, 51, 67-81.

SATTER, George A. (with Cassel, R.)
"Tactual-Kinesthetic Localization in the Mentally Retarded."
(Accepted for publication in American Journal of Mental Deficiency).

BUTLER, Alfred J. (with Sutherland, J., Gibson, D., and Graham, D.)
"A Sociometric Study with Institutionalized Mental Defectives."
(Accepted for publication in American Journal of Mental Deficiency).

BUTLER, Alfred J.
"Test-Retest and Split-Half Reliabilities of the Wechsler-Bellevue Scales and Subtests with Mental Defectives."
American Journal of Mental Deficiency, 1954, 59, 80-84.

BERGER, Andrew
"Inhibition of the Eyelid Reflex in three Etiologic Groups of Mentally Retarded Boys as Compared with Normals."
Training School Bulletin 1954, 51, 146-152.

DELP, Harold A.
"The Retarded Child."
The Grade Teacher Magazine, LXXI: 28, 79, May 1954.

DELP, Harold A.
"How Can We Help Him?"
Scouting Magazine, 42: 10-11, 20 July-August 1954.

SCHLANGER, Bernard B.

"Environmental Influences on the Verbal Output of Mentally Retarded Children."

The Journal of Speech and Hearing Disorders, September 1954, Vol. 19, 339-343.

SCHLANGER, Bernard B.

Permission granted to Dr. Chalmers L. Stacey of Syracuse, University Psychology Dept., and Manfred F. DeMartino of Southbury Training School to reproduce in a forthcoming book of readings on counselling and psychotherapy with the mentally retarded and parents of the mentally retarded, the following article:

"Speech Therapy Results with Mentally Retarded Children in Special Classes."

Training School Bulletin, 1953, 50, 179-186.

HAWK, Lewis F. W.

"There is a Difference for Mentally Retarded Children."

Newsmagazine of New Jersey Vocational and Arts Association, June, 1954.

TRAINING SCHOOL DAIRY COW IS GRAND CHAMPION AT FAIR

Training School cattle entries at the 1954 Cumberland County Fair took three prizes, including the Grand Champion dairy cow in all classes. The cattle were shown by Paul Sheppard, herdsman, and Angelo Perri, Menantico Farms Supervisor.

The prize cow from the Menantico Farms Holstein herd was Vineland Keith Jewel Dairy Maid. In the judging, she took first place in her age class, then Senior Champion, and finally Grand Champion of the fair. Her records showed she produced 17,884 lbs. of milk, 648 lbs. of butterfat in 303 days.

Vineland Star Alba Marcella, another Menantico Holstein, took second prize in the fifth class senior showing of 18 heifers from all parts of the country. A Holstein bull, Mel-Etta Wenro, also won second place in a class of 4.

A special ribbon was also given to The Training School fruits and vegetables exhibit, displayed by Henry Renne, farm supervisor.

DR. MORTIMER GARRISON, JR. NAMED TO RESEARCH STAFF

Dr. Mortimer Garrison, Jr., of the psychology department of the University of Pennsylvania, was named chief psychologist of the research department of The Training School on July 1st.

A native of Bridgeton, he is the son of Mr. and Mrs. Mortimer Garrison of that city. He was graduated from Washington College, Chestertown, Md. and earned his master's and doctorate degrees at Columbia University. He served as senior scientist in the field of psychology for the State of New York in 1948-49. Joining the staff of the University of Pennsylvania in the fall of 1949, he served there for five years.

Dr. Garrison is a member of the American Psychological Association, the Eastern Psychological Association, the Association for the Advancement of Science, the Pennsylvania Academy of Science, Sigma Xi national honorary scientific society, and Lambda Chi Alpha fraternity. His wife is the former Jean Wood of Lancaster, Ohio. They have three children.

CLIFFORD P. LOCKYER IS NEW SUPERVISOR OF COTTAGE LIFE

Clifford P. Lockyer, a graduate of Temple University and a social studies instructor, is the new supervisor of cottage life at The Training School. He succeeds Bert W. Schmickel, who accepted a similar position July 1st at the Southbury Training School in Connecticut.

The son of Mrs. Helen M. Lockyer and the late Benjamin A. Lockyer, the new Training School staff member is president of the Mays Landing Rotary Club. He had served as a social studies teacher at Mays Landing ever since his graduation from Temple in 1950. He was active there in youth organizations and civic work, serving as co-chairman of the Youth Canteen and chairman for the Christmas and Halloween community celebrations for children. He is also secretary of the Hamilton Township planning and zoning board. A member of the Masonic Lodge at Mays Landing, he is also a member of Phi Alpha Theta, national history society, and Kappa Phi Kappa, national teachers fraternity. He is married to the former Doris Gustafson of Mays Landing.

VISITORS FROM MANY NATIONS COME TO TRAINING SCHOOL

Among the visitors to The Training School during the past several weeks were: Mrs. M. F. Jamali, co-founder of the Ramzi School for mentally handicapped children in Baghdad, Iraq; Miss Lita Servando of Bacalad, The Philippines; Miss Betty Gray, director of a school for retarded children in Belfast, North Ireland; Miss Christiane Nicolaus of Freiburg, Germany; Claude Boulanger of Paris, France; Miss Frances M. Dean of the National Association for Mental Health, London, England; Miss Jane Tuxen of Victoria, Australia.

Other visitors included: Harold Perry of the Memphis, Tenn., Council for Retarded Children; Dr. Hugh T. Croley of the psychologic clinic at Winfield, Kansas, State Training School; Miss Lelia Bailey of Los Angeles public schools; Dr. and Mrs. Nathaniel M. Levin of Miami, Florida; William P. Hurder and Michael J. Cousins of the State Training School, Pineville, Louisiana; 30 members of the Guidance and Personnel Association of New Jersey, Southern Division; 14 student nurses with Mrs. Helen M. Whitbeck, director of nursing education at Delaware State Hospital, Farnhurst, Delaware.

"TELERAMA" TV SHOW FEATURES TRAINING SCHOOL

Highlights of the many-sided activities in a resident school for retarded children were dramatically presented over "Telerama", widely known program of Television Station WPTZ, Philadelphia, on Sunday, October 17, from 3:00 to 3:30 in the afternoon, channel 3.

The Training School was the locale of the presentation in which many of the children, parents, and professional staff participated. Many hours were spent by Dick McCutchen, writer-narrator, Ralph Lopatin and Leroy Bell, photographers, at the school during the weeks preceding the show. Cal Jones is producer of "Telerama" and Jack Bidus is director. It is said that the show enjoys one of the largest viewing audiences in this TV area.

Dr. Walter Jacob, director of the school, Daniel F. Graham, superintendent, and many others who work with the 500 children at The Training School were interviewed by Mr. McCutchen as the graphic story of work to combat mental handicap was narrated in words, music, and pictures.